



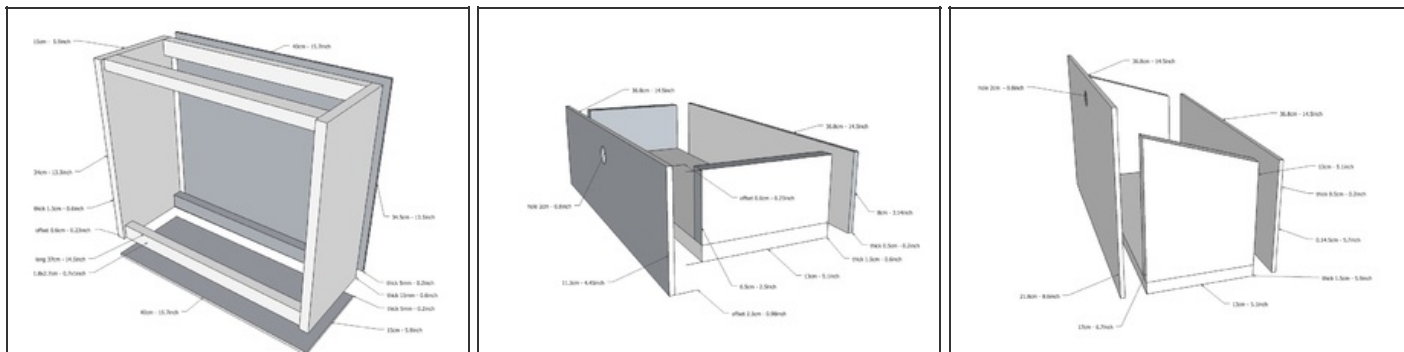
# Bike-Portable Workbench

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## SUMMARY

It's easy to put the toolbox and workmate in the trunk of my car and drive to the next job, but there has to be a more environmentally friendly solution if I am working near my house. Today, I will show you a DIY mobile toolbox and workbench that folds up to fit on the rear rack of a bike! It is able to transport all the tools needed for light repairs. The toolbox top folds out with the help of a piano hinge and a few brackets. The workbench can be removed from the bike rack and is able to stand on its own stowable legs made from aluminium tube. This portable workspace weighs only 10kg (20lbs), but it's able to support my full body weight. It's a wonderful addition to any Maker's bicycle and a great solution to work on projects in the field.

## Step 1 — Bike-Portable Workbench



- **Drawing with sizes** To make things easy, I made some drawings. First you have to cut all the wooden parts according to the diagrams. I was using 4x2 foot, 1.5 cm (0.6 inch) thick plywood and two 4x2 foot 0.5cm (0.2 inch) triplex board. For the frame you need two laths of 210cm (82.6 inches) length.

## Step 2



- The workbench top is pinewood 1.8cm (0.7 inch) thick. I started with a piece 40cm x 100cm (15.7 inches x 40 inches) and cut this into two halves. The piano hinge joined the 50cm edges so that the finished (open) size was 50cm x 80cm. The other materials are aluminium tubes and aluminium strip; see the drawing.
- Next you have to make the 2 toolboxes. Photo 2 shows the frame and photo 3 the boxes with rear and bottom pieces installed. All parts have to be cut precisely. After that it needs planing and sanding.

### Step 3



- After the 2 boxes, the four drawers can be made. Bottom and side parts are 15mm (0.6 inch) thick plywood. They are screwed together. Front and back parts are 0.5cm (0.2 inch) triplex board. Small nails connect these parts to the bottom and the side. Always apply construction glue before connecting the parts.

### Step 4



- The drawers have to slide easily into and out of the box. To make that happen I made side and bottom slats from wood. You can also use modern drawer slides. I like simple solutions. The top drawers are actually two tilt trays. This is better for carrying heavy tools. Block the tilt tray with a screw so it does not fall out of the box.
- In the bottom drawer you can install wooden strips as dividers. The handle of the drawer is a 3cm (1.2 inch) hole but external handles are also good.
- Now the legs, 50cm (20 inches) long and 2cm (0.8 inch) diameter, are made. Put plastic leg caps of 1.9cm (0.74 inch) on the bottom ends.



## Step 5



- Time to make the leg holders of aluminium (or steel) tube. The tube is 10cm (4 inches) long and 2.5cm (1 inch) in diameter. The screw hole in the tube has to be 1cm (0.4 inch) from the top.
- To connect the tube to the box a saddle from aluminium strip has to be made on the vise. This keeps the leg holder in place and is made with the lifting blocks in mind. (See photo 3.) To make the workbench stable to the floor the legs have to be directed outwards. How far will depend on the lifting block beneath the pipe.
- The position of the screw on top of the leg holder is 6.3 cm (2.5 inches) from the front or rear and 9.3cm (3.6 inches) from the bottom.

## Step 6



- The wood for the benchtop has to be cut in two equal pieces. Planing and sanding is a must to make it fit. Now attach the piano hinge to the long side. In the video you can see how to attach the cabinets to the benchtop. Bear in mind that the width of the rear rack of your bike determines the width in between the toolboxes.

## Step 7



- The first photo shows the legs stored under the bottom of the drawer. Also the 30 cm (12 inches) foldable shelf bracket is attached to the toolbox at 5cm (2 inches) from the back side. At last, the spacing aluminium strip is mounted. The length is 22cm (8.6 inches).
- Painting is a question of taste. I used 3 colors of stain. Transparent stain was used on the benchtop and black on the side, back and bottom of the toolbox. I painted the front of the toolbox red to give it a fiery and active appearance. Photo 3 shows the final result. Success!

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Most people see their own applications for this piece of furniture. With basic woodworking tools and carpenter skills it's a nice project to make in a couple of days. To me it was a challenge to make the concept work. And...yes, it is doing what I expected, so now it's your turn!

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